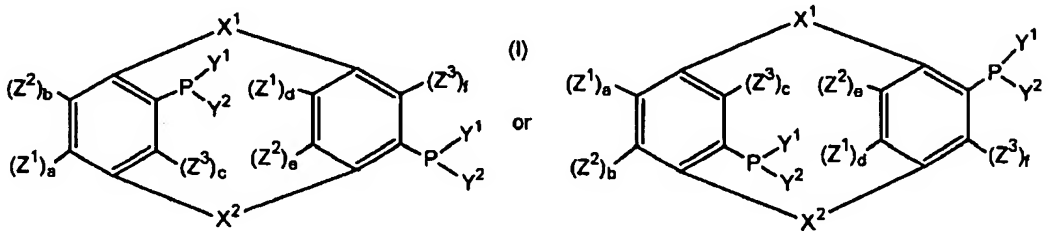
Listing of Claims: No claim amendments are made in this response. The listing of claims are included herein for the convenience of the Examiner.

1. (Original) A substituted paracyclophane of formula (I)



wherein X^1 and X^2 are linking groups comprising between 2 to 4 carbon atoms, Y^1 and Y^2 are selected from the group consisting of hydrogen, halide, oxygen, nitrogen, alkyl, cycloalkyl, aryl and heteroaryl, Z^1, Z^2 and Z^3 are substituting groups that optionally contain functional groups, a, b, c, d, e and f are 0 or 1, and (a + b + c + d + e + f) = 1 to 6.

2. (Original) A substituted paracyclophane according to claim 1 wherein X^1 and X^2 are both $-C_2H_4-$.

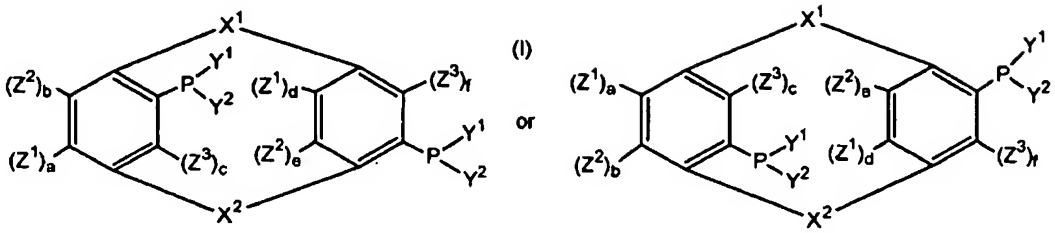
3. (Previously Presented) A substituted paracyclophane according to claim 1 wherein at least one of Z^1, Z^2 and Z^3 is a substituting group selected from C1-C30 branched or linear alkyl or phenyl, naphthyl or anthracyl groups.

4. (Previously Presented) A substituted paracyclophane according to claim 1 wherein at least one of Z^1, Z^2 and Z^3 is a substituting group comprising one or more functional groups selected from the group consisting of halide, hydroxyl, alkoxy, carbonyl, carboxyl, anhydride, methacryl, epoxide, vinyl, nitrile, nitro, sulphate, sulphonyl, mercapto, amino, amine, imine, amide and imine.

5. (Previously Presented) A substituted paracyclophane according to claim 1 wherein (a + b + c + d + e + f) = 1 or 2.

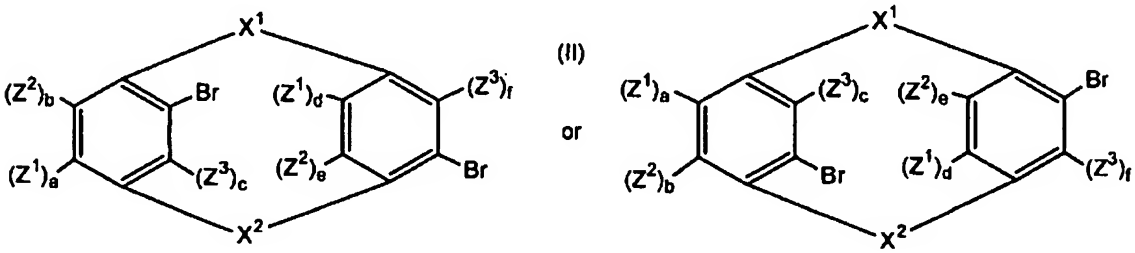
6. (Previously Presented) A substituted paracyclophane according to claim 1 wherein (a + b + c) = 1 or (d + e + f) = 1, or both of these.

7. (Original) A method for preparation of a substituted paracyclophane of (I) by,



(I)

(a) performing a substitution reaction on a pseudo-ortho dibromoparacyclophane to form an intermediate substituted pseudo-ortho dibromoparacyclophane of formula (II), and

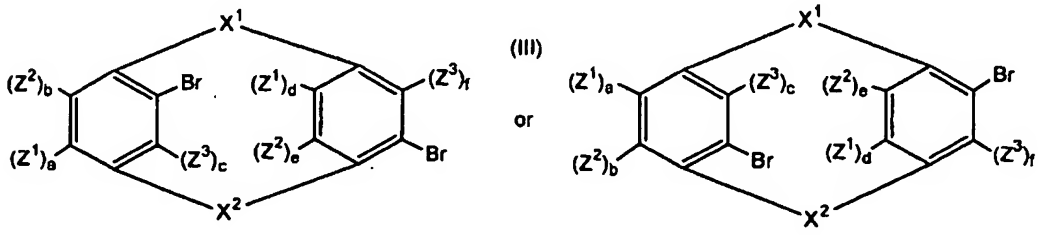


(II)

(b) reacting the substituted pseudo-ortho dibromoparacyclophane with a phosphorus compound comprising $P(Y^1Y^2)$, wherein X^1 and X^2 are linking groups comprising between 2 to 4 carbon atoms, Y^1 and Y^2 are selected from the group consisting of hydrogen, halide, oxygen, nitrogen, alkyl, cycloalkyl, aryl or heteroaryl, Z^1, Z^2 and Z^3 are substituting groups that optionally contain functional groups, a, b, c, d, e and f are 0 or 1, and (a + b + c + d + e + f) =1 to 6.

8. (Original) A method according to claim 7 wherein the substitution reaction is a Lewis-acid mediated electrophilic substitution.

9. (Previously Presented) A substituted pseudo-ortho dibromoparacyclophane of formula (III)

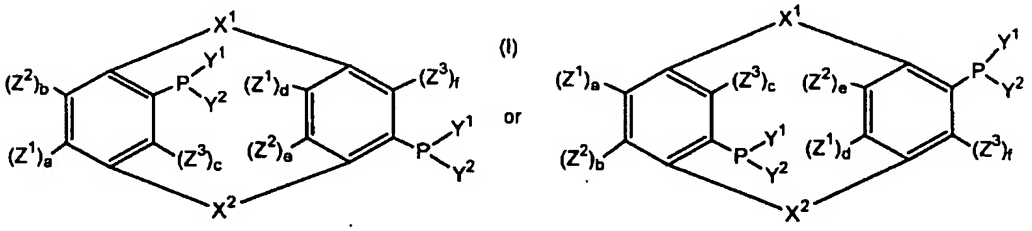


(III)

wherein X^1 and X^2 are linking groups comprising between 2 to 4 carbon atoms, Z^1, Z^2 and Z^3 are substituting groups at least one of which comprises a functional group selected from the group consisting of hydroxyl, alkoxy, carboxyl, anhydride, methacryl, epoxide, vinyl, nitrile, nitro, sulphate, sulphonyl, mercapto, sulphide amino, amine, imine, and imide, a, b, c, d, e and f are 0 or 1, and (a + b + c + d + e + f) =1 to 6.

10. (Original) A substituted pseudo-ortho dibromoparacyclophane according to claim 9 wherein the functional group is a carboxylic acid functional group or an amino functional group.

11. (Previously Presented) A metal complex comprising the reaction product of a metal compound and a substituted paracyclophane of formula (I)



wherein X^1 and X^2 are linking groups comprising between 2 to 4 carbon atoms, Y^1 and Y^2 are selected from the group consisting of hydrogen, halide, oxygen, nitrogen, alkyl, cycloalkyl, aryl and heteroaryl, Z^1, Z^2 and Z^3 are substituting groups that optionally contain functional groups, a, b, c, d, e and f are 0 or 1, and (a + b + c + d + e + f) = 1 to 6.

12. (Original) A metal complex according to claim 11 wherein the metal compound is a compound of palladium (Pd), platinum (Pt), rhodium (Rh), iridium (Ir) or ruthenium (Ru).

13. (Previously Presented) A metal complex according to claim 11 wherein the substituted paracyclophane (I) is substantially enantiomerically-pure.

14. (Previously Presented) A metal complex according to claim 11 wherein the metal complex is supported on a solid support.

15. (Previously Presented) A method of asymmetrically hydrogenating a substrate, comprising contacting the substrate with hydrogen in the presence of a catalytic amount of a metal complex according to claim 12.

16. (Previously Presented) A method of catalyzing a chemical reaction, the method comprising contacting one or more reactants with a metal complex according to claim 12, wherein the chemical reaction is selected from the group consisting of carbon-carbon coupling reactions, enantioselective isomerizations of olefins, asymmetric hydroboration reactions, asymmetric cyclisations of olefinic aldehydes, asymmetric arylation reactions, asymmetric alkylation reactions, and aminations of aryl halides according to the Hartwig-Buchwald reaction.